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> s (hydrophobin? or SC3 or HFBI or HFBII or SRHI) and (aqueous (s) two (w) phase)
1           0 FILE ADISCTI
2           0 FILE ADISINSIGHT
3           0 FILE ADISNEWS
4           1 FILE AGRICOLA
5           1 FILE ANABSTR
6           0 FILE AQUASCI
7           0 FILE BIOBUSINESS
8           0 FILE BIOCOMMERCE
9           5 FILE BIOSIS
10          3 FILE BIOTECHDS
11          3 FILE BIOTECHNO
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13          0 FILE CANCERLIT
14          7 FILE CAPLUS
15          2 FILE CEABA-VTB
16          0 FILE CEN
17          0 FILE CIN
18          0 FILE CONFSCI
19          0 FILE CROPB
20          0 FILE CROPU
21          1 FILE DISSABS
22          3 FILE DGENE
23          0 FILE DRUGB
24          0 FILE DRUGMONOG2
25          0 FILE IMSDRUGNEWS
26          0 FILE DRUGU
27          0 FILE IMSRESEARCH
28          0 FILE EMBAL
29          4 FILE EMBASE
30          5 FILE ESBIOBASE
ROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
IELD CODE - 'AND' OPERATOR ASSUMED 'AQUEOUS (S) TWO'
31          0 FILE FEDRIP
32          0 FILE FOMAD
33          0 FILE FOREGE
34          0 FILE FROSTI
35          1 FILE FSTA
36          0 FILE GENBANK
37          0 FILE HEALSAFE
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40          0 FILE JICST-EPLUS
41          0 FILE KOSMET
42          1 FILE LIFESCI
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45          0 FILE NIOSHTIC
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L46           0 FILE NTIS
L47           0 FILE NUTRACEUT
L48           0 FILE OCEAN
L49           2 FILE PASCAL
L50           0 FILE PCTGEN
L51           0 FILE PHAR
L52           0 FILE PHARMAML
L53           0 FILE PHIC
L54           0 FILE PHIN
L55           0 FILE PROMT
L56           0 FILE PROUSDDR
L57           0 FILE RDISCLOSURE
L58           5 FILE SCISEARCH
L59           0 FILE SYNTHLINE
L60           0 FILE TOXCENTER
L61           5 FILE USPATFULL
L62           0 FILE USPAT2
L63           0 FILE VETB
L64           0 FILE VETU
L65           1 FILE WPIDS
L66           0 FILE WPIFV

TOTAL FOR ALL FILES
L67          54 (HYDROPHOBIN? OR SC3 OR HFBI OR HFBII OR SRHI) AND (AQUEOUS (S)
                TWO (W) PHASE)

=> dup rem l67
DUPLICATE IS NOT AVAILABLE IN 'ADISINSIGHT, ADISNEWS, BIOCOMMERCE, DGENE,
DRUGMONOG2, IMSRESEARCH, FEDRIP, FOREGE, GENBANK, IMSPRODUCT, KOSMET,
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L68          21 DUP REM L67 (33 DUPLICATES REMOVED)

=> d ibib abs l68 1-21

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     DUPLICATE 1
ACCESSION NUMBER:    2004:261058  BIOSIS
DOCUMENT NUMBER:     PREV200400262827
TITLE:               Large-scale separation and production of engineered
                     proteins, designed for facilitated recovery in
                     detergent-based aqueous two-
                     phase extraction systems.
AUTHOR(S):           Selber, Klaus; Tjerneld, Folke; Collen, Anna; Hyytia,
                     Teppo; Nakari-Setala, Tiina; Bailey, Michael; Fagerstrom,
                     Richard; Kan, John; van der Laan, Joop; Penttila, Merja;
                     Kula, Maria-Regina [Reprint Author]
CORPORATE SOURCE:    Institute of Enzyme Technology, Heinrich-Heine University,
                     Juelich, Duesseldorf, D-52426, Germany
                     mrk3372002@yahoo.de
SOURCE:              Process Biochemistry, (March 31 2004) Vol. 39, No. 7, pp.
                     889-896. print.
                     ISSN: 1359-5113 (ISSN print).
DOCUMENT TYPE:       Article
LANGUAGE:            English
ENTRY DATE:          Entered STN: 19 May 2004
                     Last Updated on STN: 19 May 2004
AB   The feasibility and scalability of extraction in detergent-based
     aqueous two-phase systems for the separation
     of proteins from culture broth is demonstrated.  At the same time the
     large-scale production of a fusion protein and the influence of
     cultivation scale on the efficiency of separation were investigated.  An
     amphiphilic fusion protein EGIcore-HFBI was chosen, consisting
     of the catalytic core of the cellulase endoglucanase I and the small
     protein hydrophobin I, expressed homologously in Trichoderma
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reesei. Using the technical nonionic detergent Agrimul NRE 1205 the separation was successfully scaled up to 1200 1. No differences in yield or in partition coefficient were observed at 10 ml and 1200 1 scale. Changes in the fermentation temperature and scale, however, can influence the properties of the protein and thus alter partition coefficient and yield. The decreased separation efficiency appears to be correlated with changes in glycosylation at lower cultivation temperatures.

L68 ANSWER 2 OF 21 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN
ACCESSION NUMBER: 2004:324471 SCISEARCH
THE GENUINE ARTICLE: 806GQ
TITLE: Large-scale separation and production of engineered proteins, designed for facilitated recovery in detergent-based **aqueous two-phase** extraction systems
AUTHOR: Selber K; Tjerneld F; Collen A; Hyytia T; Nakari-Setala T; Bailey M; Fagerstrom R; Kan J; van der Laan J; Penttila M; Kula M R (Reprint)
CORPORATE SOURCE: Univ Dusseldorf, Inst Enzyme Technol, D-52426 Dusseldorf, Juelich, Germany (Reprint); Lund Univ, Ctr Chem & Chem Engn, Dept Biochem, S-22100 Lund, Sweden; VTT Biotechnol & Food Res, FIN-02044 Espoo, Finland; Genencor Int BV, NL-2333 CN Leiden, Netherlands
COUNTRY OF AUTHOR: Germany; Sweden; Finland; Netherlands
SOURCE: PROCESS BIOCHEMISTRY, (31 MAR 2004) Vol. 39, No. 7, pp. 889-896.
Publisher: ELSEVIER SCI LTD, THE BOULEVARD, LANGFORD LANE, KIDLINGTON, OXFORD OX5 1GB, OXON, ENGLAND.
ISSN: 0032-9592.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 26
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS
AB The feasibility and scalability of extraction in detergent-based **aqueous two-phase** systems for the separation of proteins from culture broth is demonstrated. At the same time the large-scale production of a fusion protein and the influence of cultivation scale on the efficiency of separation were investigated. An amphiphilic fusion protein EGIcore-**HFBI** was chosen, consisting of the catalytic core of the cellulase endoglucanase I and the small protein **hydrophobin** I, expressed homologously in Trichoderma reesei. Using the technical nonionic detergent Agrimul NRE 1205 the separation was successfully scaled up to 1200 l. No differences in yield or in partition coefficient were observed at 10 ml and 1200 l scale. Changes in the fermentation temperature and scale, however, can influence the properties of the protein and thus alter partition coefficient and yield. The decreased separation efficiency appears to be correlated with changes in glycosylation at lower cultivation temperatures. (C) 2003 Published by Elsevier Ltd.

L68 ANSWER 3 OF 21 USPATFULL on STN
ACCESSION NUMBER: 2002:241975 USPATFULL
TITLE: Electrophoretic medium and process for the production thereof
INVENTOR(S): Paolini, Richard J., JR., Arlington, MA, UNITED STATES
Miller, David D., Billerica, MA, UNITED STATES
Comiskey, Barrett, Cambridge, MA, UNITED STATES

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002131147	A1	20020919
APPLICATION INFO.:	US 2002-683903	A1	20020228 (9)

	NUMBER	DATE
PRIORITY INFORMATION:	US 2001-277079P	20010319 (60)

US 2001-277391P 20010319 (60)
DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: DAVID J COLE, E INK CORPORATION, 733 CONCORD AVE, CAMBRIDGE, MA, 02138-1002
NUMBER OF CLAIMS: 29
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 2 Drawing Page(s)
LINE COUNT: 1244
AB A two-phase electrophoretic medium comprises a continuous phase and a discontinuous phase. The discontinuous phase comprises a plurality of droplets, each of which comprises a suspending fluid and at least one particle disposed within the suspending fluid and capable of moving through the fluid upon application of an electric field to the electrophoretic medium. The continuous phase surrounds and encapsulates the discontinuous phase. The discontinuous phase comprises at least about 40 percent by volume of the electrophoretic medium.

L68 ANSWER 4 OF 21 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 2
ACCESSION NUMBER: 2003:1946 AGRICOLA
DOCUMENT NUMBER: IND23297051
TITLE: Expression of a fungal **hydrophobin** in the Saccharomyces cerevisiae cell wall: effect on cell surface properties and immobilization.
AUTHOR(S): Nakari-Setala, T.; Azeredo, J.; Henriques, M.; Oliveira, R.; Teixeira, J.; Linder, M.; Penttila, M.
SOURCE: Applied and environmental microbiology, July 2002. Vol. 68, No. 7. p. 3385-3391
Publisher: Washington : American Society for Microbiology
CODEN: AEMIDF; ISSN: 0099-2240
NOTE: Includes references
PUB. COUNTRY: District of Columbia; United States
DOCUMENT TYPE: Article
FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension
LANGUAGE: English
AB The aim of this work was to modify the cell surface properties of Saccharomyces cerevisiae by expression of the **HFBI** **hydrophobin** of the filamentous fungus Trichoderma reesei on the yeast cell surface. The second aim was to study the immobilization capacity of the modified cells. Fusion to the Flo1p flocculin was used to target the **HFBI** moiety to the cell wall. Determination of cell surface characteristics with contact angle and zeta potential measurements indicated that **HFBI**-producing cells are more apolar and slightly less negatively charged than the parent cells. Adsorption of the yeast cells to different commercial supports was studied. A twofold increase in the binding affinity of the **hydrophobin**-producing yeast to hydrophobic silicone-based materials was observed, while no improvement in the interaction with hydrophilic carriers could be seen compared to that of the parent cells. Hydrophobic interactions between the yeast cells and the support are suggested to play a major role in attachment. Also, a slight increase in the initial adsorption rate of the **hydrophobin** yeast was observed. Furthermore, due to the engineered cell surface, **hydrophobin**-producing yeast cells were efficiently separated in an **aqueous two-phase** system by using a nonionic polyoxyethylene detergent, C(12-18)EO(5).

L68 ANSWER 5 OF 21 CEABA-VTB COPYRIGHT 2004 DECHEMA on STN
ACCESSION NUMBER: 2002(10):5428 CEABA-VTB FILE SEGMENT B
TITLE: Primary recovery of a genetically engineered Trichoderma reesei endoglucanase I (Cel 7B) fusion protein in cloud point extraction systems

AUTHOR: Collen, A.; Selber, K.; Hyytiae, T.; Persson, J.; Nakari-Setlae, T.; Bailey, M.; Fagerstroem, R.; Kula, M.-R.; Penttilae, M.; Staalbrand, H.; Tjerneld, F.
CORPORATE SOURCE: Lund Univ., S; VTT Biotechnol., Espoo, FIN; Univ. Duesseldorf, Juelich, D
SOURCE: Biotechnology and Bioengineering (2002) 78(4), 51 Reference(s), 385-394, 4f, 3t
CODEN: BIBIAU ISSN: 0006-3592
DOCUMENT TYPE: Journal
LANGUAGE: English
FS B

AB **Aqueous two-phase** extraction or cloud point extraction systems (CPE) is designated as detergent based system used to separate hydrophobic from hydrophilic proteins to increase the specificity of such systems affinity derived surfactants have been employed and a hydrophilic cellulose from Trichoderma reesei called endogluccanase I (EGI) was partitioned to thin the detergent-based system by the fusion of a hydrophobic protein (**hydrophobin**) to the target protein. Here the partitioning of hydrophilic EGI by fusion of peptide tags to the protein is studied and the expression of fused protein under large scale conditions was studied. The partitioning of the T. reesei strain (WP4) tag was shown to strongly enhance partitioning of the tagged protein to the detergent-enriched phase leaving unmodified cellulases and bulk proteins in the water phase.(Steen, Helen J.)

L68 ANSWER 6 OF 21 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:766622 CAPLUS
DOCUMENT NUMBER: 137:368622
TITLE: Parameters influencing protein extraction for whole broths in detergent based **aqueous two-phase** systems
AUTHOR(S): Selber, Klaus; Collen, Anna; Hyytia, Teppo; Penttila, Merja; Tjerneld, Folke; Kula, Maria-Regina
CORPORATE SOURCE: Institut fur Enzymtechnologie, Heinrich-Heine-Universitat Dusseldorf, Julich, D-52426, Germany
SOURCE: Bioseparation (2002), Volume Date 2001, 10(4/5), 229-236
CODEN: BISPE4; ISSN: 0923-179X
PUBLISHER: Kluwer Academic Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The parameters important for an optimization of cloud point extraction in tech. scale were investigated using a genetically engineered fusion protein derived from endoglucanase I expressed in Trichoderma reesei and the nonionic polyoxyethylene Agrimul NRE 1205. The key parameters are temperature, detergent concentration, and addnl. salts. These parameters are interdependent, thus there is an optimum in the partition coefficient with respect to detergent concentration and a maximum for the partition coefficient and the yield with respect to temperature These results were confirmed for the detergent C12E5 to demonstrate that these optima are due to the nature of polyoxyethylenes. Cloud point extraction was found to be only slightly affected by pH. In the case studied extraction of whole broth is favorable for a high yield and partition coefficient, since fusion protein adhering to the cells can be solubilized. However some loss of detergent which remains in the fungal biomass was observed

REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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DUPLICATE 3
ACCESSION NUMBER: 2002:260341 BIOSIS
DOCUMENT NUMBER: PREV200200260341
TITLE: A novel two-step extraction method with detergent/polymer systems for primary recovery of the fusion protein endoglucanase I-**hydrophobin** I.
AUTHOR(S): Collen, Anna; Persson, Josefine; Linder, Markus;

Nakari-Setala, Tiina; Penttila, Merja; Tjerneld, Folke [Reprint author]; Sivars, Ulf

ORPORATE SOURCE: Department of Biochemistry, Center for Chemistry and Chemical Engineering, Lund University, S-221 00, Lund, Sweden
folke.tjerneld@biokem.lu.se

OURCE: Biochimica et Biophysica Acta, (15 January, 2002) Vol. 1569, No. 1-3, pp. 139-150. print.
CODEN: BBACAQ. ISSN: 0006-3002.

OCUMENT TYPE: Article

ANGUAGE: English

NTRY DATE: Entered STN: 24 Apr 2002
Last Updated on STN: 24 Apr 2002

B Extraction systems for hydrophobically tagged proteins have been developed based on phase separation in aqueous solutions of non-ionic detergents and polymers. The systems have earlier only been applied for separation of membrane proteins. Here, we examine the partitioning and purification of the amphiphilic fusion protein endoglucanase Icore-**hydrophobin** I (EGIcore-**HFBI**) from culture filtrate originating from a Trichoderma reesei fermentation. The micelle extraction system was formed by mixing the non-ionic detergent Triton X-114 or Triton X-100 with the hydroxypropyl starch polymer, Reppal PES100. The detergent/polymer **aqueous two-phase** systems resulted in both better separation characteristics and increased robustness compared to cloud point extraction in a Triton X-114/water system. Separation and robustness were characterized for the parameters: temperature, protein and salt additions. In the Triton X-114/Reppal PES100 detergent/polymer system EGIcore-**HFBI** strongly partitioned into the micelle-rich phase with a partition coefficient (K) of 15 and was separated from hydrophilic proteins, which preferably partitioned to the polymer phase. After the primary recovery step, EGIcore-**HFBI** was quantitatively back-extracted (KEGIcore-**HFBI**=150, yield=99%) into a water phase. In this second step, ethylene oxide-propylene oxide (EOPO) copolymers were added to the micelle-rich phase and temperature-induced phase separation at 55degreeC was performed. Total recovery of EGIcore-**HFBI** after the two separation steps was 90% with a volume reduction of six times. For thermolabile proteins, the back-extraction temperature could be decreased to room temperature by using a hydrophobically modified EOPO copolymer, with slightly lower yield. The addition of thermoseparating co-polymer is a novel approach to remove detergent and effectively releases the fusion protein EGIcore-**HFBI** into a water phase.

68 ANSWER 8 OF 21 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN

CCESSION NUMBER: 2002:287918 SCISEARCH

HE GENUINE ARTICLE: 536GM

ITLE: A novel two-step extraction method with detergent/polymer systems for primary recovery of the fusion protein endoglucanase I-**hydrophobin** I

UTHOR: Collen A; Persson J; Linder M; Nakari-Setala T; Penttila M; Tjerneld F (Reprint); Sivars U

ORPORATE SOURCE: Lund Univ, Ctr Chem & Chem Engn, Dept Biochem, POB 124, S-22100 Lund, Sweden (Reprint); Lund Univ, Ctr Chem & Chem Engn, Dept Biochem, S-22100 Lund, Sweden; VTT Biotechnol & Food Res, FIN-02044 Espoo, Finland

OUNTRY OF AUTHOR: Sweden; Finland

OURCE: BIOCHIMICA ET BIOPHYSICA ACTA-GENERAL SUBJECTS, (15 JAN 2002) Vol. 1569, No. 1-3, pp. 139-150.
Publisher: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS.
ISSN: 0304-4165.

OCUMENT TYPE: Article; Journal

ANGUAGE: English

EFERENCE COUNT: 44

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Extraction systems for hydrophobically tagged proteins have been

developed based on phase separation in **aqueous** solutions of non-ionic detergents and polymers. The systems have earlier only been applied for separation of membrane proteins. Here, we examine the partitioning and purification of the amphiphilic fusion protein endoglucanase I-core-**hydrophobin** I (EGI(core)-**HFBI**) from culture filtrate originating from a Trichoderma reesei fermentation. The micelle extraction system was formed by mixing the non-ionic detergent Triton X-114 or Triton X-100 with the hydroxypropyl starch polymer, Reppal PES100. The detergent/polymer **aqueous two-phase** systems resulted in both better separation characteristics and increased robustness compared to cloud point extraction in a Triton X-114/water system. Separation and robustness were characterized for the parameters: temperature, protein and salt additions. In the Triton X-114/Reppal PES100 detergent/polymer system EGI(core)-**HFBI** strongly partitioned into the micelle-rich phase with a partition coefficient (K) of 15 and was separated from hydrophilic proteins, which preferably partitioned to the polymer phase. After the primary recovery step, EGI(core)-**HFBI** was quantitatively back-extracted (KEGIcore-**HFBI** = 150, yield = 99%) into a water phase. In this second step, ethylene oxide-propylene oxide (EOPO) copolymers were added to the micelle-rich phase and temperature-induced phase separation at 55degreesC was performed. Total recovery of EGI(core)-**HFBI** after the two separation steps was 90% with a volume reduction of six times. For thermolabile proteins, the back-extraction temperature could be decreased to room temperature by using a hydrophobically modified EOPO copolymer, with slightly lower yield. The addition of thermoseparating co-polymer is a novel approach to remove detergent and effectively releases the fusion protein EGI(core)-**HFBI** into a water phase. (C) 2002 Elsevier Science B.V. All rights reserved.

L68 ANSWER 9 OF 21 ANABSTR COPYRIGHT 2004 RSC on STN DUPLICATE 4

AB Endoglucanases (EGI) (endo-1,4-β-D-glucan-4-glucanohydrolase, EC 3.2.1.4, Ce17B) of Trichoderma reesei are industrially important enzymes. Thus, there is a great need for development of a primary recovery method suitable for large-scale utilization. In this study we present a concept applicable for large-scale purification of an EGI fusion protein by one-step extraction in a poly(ethylene glycol) PEG-sodium/potassium phosphate **aqueous two-phase** system. EGI is a two-module enzyme composed of an N-terminal catalytic module and a C-terminal cellulose binding module (CBM) separated by a glycosylated linker region. Partitioning of six different EGI constructs, containing the C-terminal extensions (WP)2, (WP)4 or the amphiphilic protein **hydrophobin** I (HFB) of T. reesei instead of the CBM were studied to evaluate if any of the fusions could improve the partition coefficient sufficiently to be suitable for large-scale production. All constructs showed improved partitioning in comparison to full length EGI. The (WP)4 extensions resulted in 26- to 60-fold improvement of partition coefficient. Consequently, a relative minor change in amino-acid sequence on the two-module protein EGI improved the partition coefficient significantly in the PEG 4000-sodium/potassium phosphate system. The addition of **HFBI** to EGI clearly enhanced the partition coefficient (K = 1.2) in comparison to full-length EGI (K = 0.035). Partitioning of the construct with (WP)4 fused to the catalytic module and a short sequence of the linker (EGIcore-P5(WP)4) resulted in the highest partition coefficient (K = 54) and a yield of 98% in the PEG phase. Gel electrophoresis showed that the construct with the (WP)4 tag attached after a penta-proline linker could be purified from the other bulk proteins by only a single-step separation in the PEG 4000-sodium/potassium phosphate system. This is a major improvement in comparison with the previously studied model (ethylene oxide-propylene oxide)-dextran system. Hence, this construct will be suitable for further optimization of the extraction of the enzyme in a PEG 4000-sodium/potassium phosphate system from culture filtrate.

L68 ANSWER 10 OF 21 DISSABS COPYRIGHT (C) 2004 ProQuest Information and Learning Company; All Rights Reserved on STN

ACCESSION NUMBER: 2002:9380 DISSABS Order Number: AAIC806246 (not available for sale by UMI)
TITLE: Hydrophobic fusion tags: Implication for bioseparation and cellular expression
AUTHOR: Collen, Anna Maria Christine [Ph.D.]
CORPORATE SOURCE: Lunds Universitet (Sweden) (0899)
SOURCE: Dissertation Abstracts International, (2001) Vol. 62, No. 4C, p. 565. Order No.: AAIC806246 (not available for sale by UMI).
ISBN: 91-7874-140-8.
DOCUMENT TYPE: Dissertation
FILE SEGMENT: DAI
LANGUAGE: English

AB The studies in this thesis have shown that the partitioning of endoglucanase I (EGI, Cel7B) from Trichoderma reesei could be significantly improved by relatively minor genetic engineering. By adding short peptides composed of tryptophan and proline residues to EGI, extreme partitioning could be obtained. The site of the tag fission was shown to be crucial for the efficiency of the tag. Methods suitable for large-scale purification of genetically modified EGI by a single-step extraction in **aqueous two-phase** systems have been established. The most optimal fusion protein, with respect to partitioning enhancement resulted, however, in impaired production in T. reesei. This was further elucidated and the low production was suggested to be caused by several factors such as proteolysis, impaired secretion and intracellular accumulation of the hydrophobic fusion protein. At certain stages during growth of the transformant expressing EGIcore-p5(WP)4 slight induction of the gene encoding the ER residual chaperone BIPI was detected.

Furthermore, the amphiphilic protein **hydrophobin** I was utilized as a fusion tag to direct partitioning in **aqueous two phase** systems. A system with improved separation features was evaluated, which is a clear progression from previously used systems with respect to both robustness and purification properties. Applications towards large-scale purification with this system might be possible in the foreseeable future. Additionally, a novel approach for detergent removal after **two-phase** extraction in detergent based systems was developed. By addition of thermoseparating polymers, HM-EOPO or EOPO, phase separation could be induced by temperature increase, and thus the fusion protein could be recovered in a water phase. This method is both environmentally benign and displays compatibility with subsequent purification steps and handling of the target protein.

L68 ANSWER 11 OF 21 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 5
ACCESSION NUMBER: 2002:267630 BIOSIS
DOCUMENT NUMBER: PREV200200267630
TITLE: The **hydrophobins HFBI** and **HFBII** from Trichoderma reesei showing efficient interactions with nonionic surfactants in **aqueous two-phase** systems.
AUTHOR(S): Linder, Markus [Reprint author]; Selber, Klaus; Nakari-Setala, Tiina; Qiao, Mingqiang; Kula, Maria-Regina; Penttila, Merja
CORPORATE SOURCE: VTT Biotechnology, FIN-02044, Espoo, Finland markus.linder@vtt.fi
SOURCE: Biomacromolecules, (Summer, 2001) Vol. 2, No. 2, pp. 511-517. print.
ISSN: 1525-7797.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 1 May 2002
Last Updated on STN: 1 May 2002

AB Fungal **hydrophobins** are a group of surface active, self-assembling proteins. The filamentous fungus Trichoderma reesei

produces two (class II) **hydrophobins**, **HFBI** and **HFBII**. We have studied how these water-soluble **hydrophobins** behave in two-phase systems using a series of nonionic surfactants with different characteristics. It was found that both **hydrophobins**, but especially **HFBI**, had a very high affinity for the surfactants. The highest partitioning coefficient, over 2500, was observed for **HFBI** with C11EO2. Reducing the disulfides in the protein resulted in a complete loss of affinity for the surfactant, which demonstrates that the interaction is dependent on the disulfide-stabilized conformation. The **hydrophobins** could be efficiently extracted back from the surfactant phase by addition of alcohols such as isobutanol. Effects of the type of surfactant, temperature, pH, and ionic strength were investigated. The use of this method for purifying the proteins from crude fungal culture supernatants is demonstrated and implications of the protein-polymer interaction are discussed.

L68 ANSWER 12 OF 21 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
ACCESSION NUMBER: 2002-10300 BIOTECHDS
TITLE: Parameters influencing protein extraction for whole broths in detergent based **aqueous two-phase** systems;
vector-mediated fusion gene transfer, expression in Trichoderma reesei and mathematical model for recombinant protein production and downstream processing
AUTHOR: SELBER K; COLLEN A; HYYTIA T; PENTTILA M; TJERNELD F; KULA MR
CORPORATE SOURCE: Univ Dusseldorf; Lund Univ; VTT Biotechnol
LOCATION: Selber K,
SOURCE: BIOSEPARATION; (2001) 10, 4-5, 229-236
ISSN: 0923-179X
DOCUMENT TYPE: Journal
LANGUAGE: English
AN 2002-10300 BIOTECHDS
AB AUTHOR ABSTRACT - The parameters important for an optimisation of cloud point extraction in technical scale were investigated using a genetically engineered fusion protein derived from endoglucanase I expressed in Trichoderma reesei and the nonionic polyoxyethylene Agrimul NRE 1205. The key parameters are temperature, detergent concentration, and additional salts. These parameters are interdependent, thus there is an optimum in the partition coefficient with respect to detergent concentration and a maximum for the partition coefficient and the yield with respect to temperature. These results were confirmed forthe detergent C12E5 to demonstrate that these optima are due to the natureof polyoxyethylenes. Cloud point extraction was found to be only slightly affected by pH. In the case studied extraction of whole broth is favourablefor a high yield and partition coefficient, since fusion protein adhering to the cells can be solubilized. However some loss of detergent which remains in the fungal biomass was observed. (8 pages)

L68 ANSWER 13 OF 21 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:197443 CAPLUS
TITLE: Protein extraction using **aqueous two -phase** systems
AUTHOR(S): Kula, Maria-Regina A.; Selber, Klaus
CORPORATE SOURCE: Institute of Enzyme Technology, Heinrich Heine University Duesseldorf, D-52428 Juelich, Germany
SOURCE: Abstracts of Papers - American Chemical Society (2001), 221st, BIOT-136
CODEN: ACSRAL; ISSN: 0065-7727
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal; Meeting Abstract
LANGUAGE: English
AB Solvent extraction is widely used in industry to isolate labile compds. Proteins are amenable to extraction using **aq. two-phase** systems. This approach has the advantage, that whole broth or cell homogenates can be processed integrating product capture with the

removal of solids in a single unit operation. Continuous isolation of enzymes from homogenates will be demonstrated in pilot scale processing 500 kg yeast per day. The very low interfacial tension of these systems allows mixing with low energy input and fast approach to equilibrium, which has to be taken into special consideration when operating conventional multistage extraction equipment. The interfacial tension may limit centrifugal phase separation The latter was observed during the isolation of an endoglucanase I- **hydrophobin** fusion protein from Trichoderma spec.in a cloud point extraction Gravity settling is a useful, low cost option to sep. aqueous phases since emulsions are rarely encountered.

L68 ANSWER 14 OF 21 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
ACCESSION NUMBER: 2001-03035 BIOTECHDS
TITLE: Isolation and purification of proteins or cells in **aqueous two-phase** systems, comprises combining a desired protein or a cell to a targeting protein capable of isolating the protein or cell into one of the phases;
vector-mediated CM-cellulase, hemicellulase, protease or antibody gene transfer and expression in Saccharomyces cerevisiae for recombinant protein production and protein purification
AUTHOR: Penttila M; Nakari-Setala T; Fagerstrom R; Selber K; Kula M R; Linder M; Tjerneld F
PATENT ASSIGNEE: VTT
LOCATION: Espoo, Finland.
PATENT INFO: WO 2000058342 5 Oct 2000
APPLICATION INFO: WO 2000-FI249 24 Mar 2000
PRIORITY INFO: FI 1999-1782 20 Aug 1999; FI 1999-667 25 Mar 1999
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 2000-686858 [67]
AN 2001-03035 BIOTECHDS
AB A method for the isolation and purification of proteins (CM-cellulase, hemicellulase, protease or antibody) or cells in aqueous two-phase systems (ATPS) is new and involves combining a desired protein or a cell to an amphipathic or hydrophobic target protein (I) having the ability to separate in ATPS and to carry the protein or cell into 1 of the phases, and subjecting the fusion protein or cell carrying (I) to an ATPS separation. Also claimed are: a fusion protein (II) having (I) fused to a desired protein; a recombinant organism producing (II); a recombinant DNA with a DNA molecule encoding (II); preparation of (II) by transforming an organism with DNA enabling expression of (I) and recovering the protein from the organism culture; and separating **hydrophobins** or **hydrophobin**-like proteins in ATPSs by mixing solutions containing the **hydrophobin**-like protein with phase forming chemicals and carrying out ATPS separation. The method is used to isolate and purify proteins or cells in ATPSs. In an example, Saccharomyces cerevisiae VTT-C-99315 and H2155 (plasmid pYES2) were cultivated were used for experiments. (109pp)

L68 ANSWER 15 OF 21 USPATFULL on STN
ACCESSION NUMBER: 1999:75157 USPATFULL
TITLE: Method for preparing hydrophobic fumed silica
INVENTOR(S): Griffith, Phillip Joseph, Llandough, United Kingdom
Herron, William, South Glamorgan, United Kingdom
Harkness, Brian Robert, Vale of Glamorgan, United Kingdom
Taylor, Rosemary Margaret, Vale of Glamorgan, United Kingdom
Wilson, David James, South Glamorgan, United Kingdom
PATENT ASSIGNEE(S): Dow Corning Corporation, Midland, MI, United States (U.S. corporation)

NUMBER	KIND	DATE

TENT INFORMATION: US 5919298 19990706
PLICATION INFO.: US 1998-5852 19980112 (9)
CUMENT TYPE: Utility
LE SEGMENT: Granted
IMARY EXAMINER: Brunsman, David
GAL REPRESENTATIVE: Boley, William F.
MBER OF CLAIMS: 27
EMPLARY CLAIM: 1
NE COUNT: 727
S INDEXING IS AVAILABLE FOR THIS PATENT.

A method for the preparation of hydrophobic fumed silicas which are useful, for example, as reinforcing fillers in rubber compositions. The method comprises two steps, where in the first step an aqueous suspension of fumed silica is contacted with an organosilicon compound in the presence of a catalytic amount of an acid to effect **hydrophobing** of the fumed silica. In the preferred method the first step is conducted in the presence of a water miscible organic solvent which facilitates **hydrophobing** of the fumed silica with the organosilicon compound and the fumed silica has a BET surface area greater than 50 m.sup.2 /g. In the second step the aqueous suspension of the fumed silica is contacted with a water-immiscible organic solvent at a solvent to silica weight ratio greater than 0.1:1 to effect separation of the hydrophobic fumed silica from the aqueous phase. In a preferred process the hydrophobic fumed silica has a surface area within a range of about 100 m.sup.2 /g to 750 m.sup.2 /g.

S INDEXING IS AVAILABLE FOR THIS PATENT.

8 ANSWER 16 OF 21 USPATFULL on STN
CESSION NUMBER: 1999:63133 USPATFULL
TLE: Method of preparing hydrophobic precipitated silica
VENTOR(S): Griffith, Phillip J., Llandough, United Kingdom
Harkness, Brian R., Cowbridge, United Kingdom
Herron, William, Cowbridge, United Kingdom
Taylor, Rosemary M., Barry, United Kingdom
Wilson, David J., Penarth, United Kingdom
TENT ASSIGNEE(S): Dow Corning Corporation, Midland, MI, United States (U.S. corporation)

	NUMBER	KIND	DATE	
TENT INFORMATION:	US 5908660		19990601	
PLICATION INFO.:	US 1997-923073		19970903	(8)

CUMENT TYPE: Utility
LE SEGMENT: Granted
IMARY EXAMINER: Cameron, Erma
GAL REPRESENTATIVE: Boley, William F.
MBER OF CLAIMS: 20
EMPLARY CLAIM: 1
NE COUNT: 446
S INDEXING IS AVAILABLE FOR THIS PATENT.

A method for the preparation of hydrophobic precipitated silicas which are useful, for example, as reinforcing fillers in rubber compositions. The method comprises two steps, where in the first step an aqueous suspension of precipitated silica is contacted with an organosilicon compound in the presence of a catalytic amount of an acid to effect **hydrophobing** of the precipitated silica. In the second step the aqueous suspension of the hydrophobic precipitated silica is contacted with a water-immiscible organic solvent at a solvent to silica weight ratio greater than 5:1 to effect separation of the hydrophobic precipitated silica from the aqueous phase.

S INDEXING IS AVAILABLE FOR THIS PATENT.

3 ANSWER 17 OF 21 USPATFULL on STN
CESSION NUMBER: 95:1293 USPATFULL

TLE: Non-aqueous liquid cleaning products comprising polyalkoxylated derivatives of castor oil ricinoleic acid and analogous fatty alcohols
VENTOR(S): Houghton, Mark P., Rotterdam, Netherlands
Verburg, Charles C., Vlaardingen, Netherlands
TENT ASSIGNEE(S): Lever Brothers Company, Division of Conopco, Inc., New York, NY, United States (U.S. corporation)

	NUMBER	KIND	DATE	
TENT INFORMATION:	US 5378387		19950103	
PLICATION INFO.:	US 1993-71436		19930601	(8)

	NUMBER	DATE
IORITY INFORMATION:	EP 1992-201565	19920602

CUMENT TYPE: Utility
LE SEGMENT: Granted
IMARY EXAMINER: Lieberman, Paul
SISTANT EXAMINER: Hertzog, A.
GAL REPRESENTATIVE: Koatz, Ronald A.
MBER OF CLAIMS: 5
EMPLARY CLAIM: 1,4
NE COUNT: 700
S INDEXING IS AVAILABLE FOR THIS PATENT.

Substantially non-aqueous liquid cleaning compositions comprising a non-aqueous liquid phase that comprises a polyalkoxylated castor oil derivative and/or polyalkoxylated derivatives of ricinoleic acid (set forth as formula (III)) and/or polyalkoxylated derivatives of analogous fatty alcohols (set forth as formula (IV)).

S INDEXING IS AVAILABLE FOR THIS PATENT.

8 ANSWER 18 OF 21 USPATFULL on STN
CESSION NUMBER: 82:39765 USPATFULL
TLE: Method for producing hydrophobic reinforcing silica fillers and fillers obtained thereby
VENTOR(S): Lutz, Michael A., Midland, MI, United States
TENT ASSIGNEE(S): Dow Corning Corporation, Midland, MI, United States (U.S. corporation)

	NUMBER	KIND	DATE	
TENT INFORMATION:	US 4344800		19820817	
PLICATION INFO.:	US 1980-156002		19800603	(6)

CUMENT TYPE: Utility
LE SEGMENT: Granted
IMARY EXAMINER: Dees, Carl F.
GAL REPRESENTATIVE: Rakoczy, Richard E.
MBER OF CLAIMS: 84
EMPLARY CLAIM: 1,43
NE COUNT: 2072
S INDEXING IS AVAILABLE FOR THIS PATENT.

Hydrophobic reinforcing silica fillers for silicone rubber are produced by the steps of mixing an alkyl silicate, preferably methyl orthosilicate, at least 70% of one-half of the stoichiometric amount of water required to hydrolyze the alkoxy radicals present in the alkyl silicate, an alcohol and at least 0.05 moles (per mole of theoretical SiO.sub.2 units present in the alkyl silicate) of a hydrophobe agent such as hexamethyldisilazane together in the presence of a basic catalyst, said hydrophobe agent being added prior to the gelation of the mixture, and aging the mixture to obtain a composition containing a hydrophobic reinforcing silica filler for silicone rubber. Preferably, the hydrophobe agent is added prior to or concurrently with the addition of the alkyl silicate. Vulcanized silicone rubbers possessing tensile strengths in excess of 12.4 megapascals and tear strengths of greater

than 31 kiloNewtons/meter can be prepared using the above fillers.

S INDEXING IS AVAILABLE FOR THIS PATENT.

8 ANSWER 19 OF 21 DGENE COPYRIGHT 2004 THOMSON DERWENT on STN
CCESSION NUMBER: AAA95429 DNA DGENE
TLE: Isolation and purification of proteins or cells in **aqueous two-phase** systems, comprises combining a desired protein or a cell to a targeting protein capable of isolating the protein or cell into one of the phases -
NVENTOR: Penttilae M; Nakari-Setaelae T; Fagerstroem R; Selber K; Kula M; Linder M; Tjerneld F
ATENT ASSIGNEE: (VALW) VALTION TEKNILLINEN TUTKIMUSKESKUS.
ATENT INFO: WO 2000058342 A1 20001005 109p
PPLICATION INFO: WO 2000-FI249 20000324
RIORITY INFO: FI 1999-667 19990325
FI 1999-1782 19990820
OCUMENT TYPE: Patent
ANGUAGE: English
THER SOURCE: 2000-686858 [67]
ESCRIPTION: S. commune **SC3** coding sequence PCR primer #2.
N AAA95429 DNA DGENE
B The present invention is related to a novel method for separating, purifying and isolating proteins and cells. This involves the use of liquid-liquid extraction in an **aqueous two-phase** system (ATPS) which partitions molecules by fusing them to targeting proteins which then carry the molecules of interest into one of the phases. The present sequence is a PCR primer which was used to demonstrate the method of the invention. The method is useful in also useful in the identification of nucleic acid sequences in expression library screening.

58 ANSWER 20 OF 21 DGENE COPYRIGHT 2004 THOMSON DERWENT on STN
CCESSION NUMBER: AAA95428 DNA DGENE
ITLE: Isolation and purification of proteins or cells in **aqueous two-phase** systems, comprises combining a desired protein or a cell to a targeting protein capable of isolating the protein or cell into one of the phases -
NVENTOR: Penttilae M; Nakari-Setaelae T; Fagerstroem R; Selber K; Kula M; Linder M; Tjerneld F
ATENT ASSIGNEE: (VALW) VALTION TEKNILLINEN TUTKIMUSKESKUS.
ATENT INFO: WO 2000058342 A1 20001005 109p
PPLICATION INFO: WO 2000-FI249 20000324
RIORITY INFO: FI 1999-667 19990325
FI 1999-1782 19990820
OCUMENT TYPE: Patent
ANGUAGE: English
THER SOURCE: 2000-686858 [67]
ESCRIPTION: S. commune **SC3** coding sequence PCR primer #1.
N AAA95428 DNA DGENE
B The present invention is related to a novel method for separating, purifying and isolating proteins and cells. This involves the use of liquid-liquid extraction in an **aqueous two-phase** system (ATPS) which partitions molecules by fusing them to targeting proteins which then carry the molecules of interest into one of the phases. The present sequence is a PCR primer which was used to demonstrate the method of the invention. The method is useful in also useful in the identification of nucleic acid sequences in expression library screening.

58 ANSWER 21 OF 21 DGENE COPYRIGHT 2004 THOMSON DERWENT on STN
CCESSION NUMBER: AAA95427 DNA DGENE
ITLE: Isolation and purification of proteins or cells in **aqueous two-phase** systems,

comprises combining a desired protein or a cell to a targeting protein capable of isolating the protein or cell into one of the phases -

INVENTOR: Penttilae M; Nakari-Setaelae T; Fagerstroem R; Selber K; Kula M; Linder M; Tjerneld F

PATENT ASSIGNEE: (VALW) VALTION TEKNILLINEN TUTKIMUSKESKUS.

PATENT INFO: WO 2000058342 A1 20001005 109p

APPLICATION INFO: WO 2000-FI249 20000324

PRIORITY INFO: FI 1999-667 19990325
FI 1999-1782 19990820

DOCUMENT TYPE: Patent

LANGUAGE: English

OTHER SOURCE: 2000-686858 [67]

DESCRIPTION: S. commune **SC3** coding sequence.

AN AAA95427 DNA DGENE

AB The present invention is related to a novel method for separating, purifying and isolating proteins and cells. This involves the use of liquid-liquid extraction in an **aqueous two-phase** system (ATPS) which partitions molecules by fusing them to targeting proteins which then carry the molecules of interest into one of the phases. The present sequence was used in a fusion molecule to demonstrate the method of the invention. The method is useful in also useful in the identification of nucleic acid sequences in expression library screening.

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	DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; THES=ASSIGNEE; PLUR=YES; OP=ADJ		
☐	L23	(hfbI or hfbII or srhI or sc3) and (aqueous same two adj phase)	4
☐	L22	(hfb$ or srhI or sc3) and (aqueous same two adj phase)	17
☐	L21	(hfb$ or srhI or sc3) and (aqueous adj two adj phase)	1
☐	L20	(hfb$ or srhI or sc3) and (aqueous adj two adj phase or ATPS)	215
☐	L19	(hfb$ or srhI or sc3) and (aqueous adj two adj phase or ATPS)	215
☐	L18	(hfb$ or srhI or sc3) and (aqueous same two adj phase or ATPS)	231
☐	L17	(hfb$ or srhI or sc3) and (aqueous same two same phase or ATPS)	260
☐	L16	(hfb$ or srhI) and aqueous same phase	179
☐	L15	(hfb$ or srhI) and hydrophobin and aqueous same phase	1
☐	L14	(hfb$ or srhI) same hydrophobin and aqueous same phase	0
	DB=PGPB,USPT,EPAB,DWPI,TDBD; THES=ASSIGNEE; PLUR=YES; OP=ADJ		
☐	L13	(hfb$ or srhI) same hydrophobin and aqueous same phase	0
☐	L12	sc3 same hydrophobin and aqueous same phase	0
☐	L11	sc3 same hydrophobin and two same phase	0
☐	L10	sc3 same hydrophobin	5
☐	L9	(hydrophobin or amphipath$ or HFBI or HFBII or SRHI) same aqueous same two adj phase	11
☐	L8	(hydrophobin or surfactant or amphipath$ or HFBI or HFBII or SRHI) same aqueous same two adj phase	620
☐	L7	(hydrophobin or surfactant or amphipath$ orHFBI or HFBII or SRHI) same aqueous same two adj phase	611
☐	L6	(hydrophobin or surfactant or amphipath$) and aqueous same two adj phase	3799
☐	L5	hydrophobin and aqueous same two adj phase	1
☐	L4	hydrophobin? and aqueous same two adj phase	6
☐	L3	hydrophobin$ and aqueous same two adj phase	6
☐	L2	hydrophobin$ and aqueous adj two adj phase	1
☐	L1	hydrophobin$	764

ND OF SEARCH HISTORY

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☐ 1. Document ID: US 20020131147 A1

ing default format because multiple data bases are involved.

L4: Entry 1 of 6 File: PGPB Sep 19, 2002

PUB-DOCUMENT-NUMBER: 20020131147
PUB-FILING-TYPE: new
CUMENT-IDENTIFIER: US 20020131147 A1

TLE: Electrophoretic medium and process for the production thereof

BLICATION-DATE: September 19, 2002

VENTOR-INFORMATION:

ME	CITY	STATE	COUNTRY	RULE-47
olini, Richard J. JR.	Arlington	MA	US	
ller, David D.	Billerica	MA	US	
miskey, Barrett	Cambridge	MA	US	

-CL-CURRENT: 359/296; 359/290

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

☐ 2. Document ID: US 5919298 A

L4: Entry 2 of 6 File: USPT Jul 6, 1999

-PAT-NO: 5919298
CUMENT-IDENTIFIER: US 5919298 A

TLE: Method for preparing hydrophobic fumed silica

TE-ISSUED: July 6, 1999

VENTOR-INFORMATION:

ME	CITY	STATE	ZIP CODE	COUNTRY
iffith; Phillip Joseph	Llandough			GB
rron; William	South Glamorgan			GB
rkness; Brian Robert	Vale of Glamorgan			GB
ylor; Rosemary Margaret	Vale of Glamorgan			GB
lson; David James	South Glamorgan			GB

L-CURRENT: 106/490; 423/336, 423/337

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 3. Document ID: US 5908660 A

4: Entry 3 of 6 File: USPT Jun 1, 1999

AT-NO: 5908660
MENT-IDENTIFIER: US 5908660 A
**ee image for Certificate of Correction **

E: Method of preparing hydrophobic precipitated silica

-ISSUED: June 1, 1999

NTOR-INFORMATION:

	CITY	STATE	ZIP CODE	COUNTRY
fith; Phillip J.	Llandough			GB
ness; Brian R.	Cowbridge			GB
on; William	Cowbridge			GB
or; Rosemary M.	Barry			GB
on; David J.	Penarth			GB

L-CURRENT: 427/220; 106/490, 427/221, 427/443.2

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 4. Document ID: US 5378387 A

4: Entry 4 of 6 File: USPT Jan 3, 1995

AT-NO: 5378387
MENT-IDENTIFIER: US 5378387 A

E: Non-aqueous liquid cleaning products comprising polyalkoxylated derivatives of castor ricinoleic acid and analogous fatty alcohols

-ISSUED: January 3, 1995

NTOR-INFORMATION:

	CITY	STATE	ZIP CODE	COUNTRY
ghton; Mark P.	Rotterdam			NL
burg; Charles C.	Vlaardingen			NL

L-CURRENT: 510/161; 510/221, 510/235, 510/304, 510/312, 510/338, 510/356, 510/413, 510/437

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 5. Document ID: US 4344800 A

4: Entry 5 of 6 File: USPT Aug 17, 1982

AT-NO: 4344800
MENT-IDENTIFIER: US 4344800 A
ee image for Certificate of Correction **

E: Method for producing hydrophobic reinforcing silica fillers and fillers obtained thereby

-ISSUED: August 17, 1982

NTOR-INFORMATION:

	CITY	STATE	ZIP CODE	COUNTRY
; Michael A.	Midland	MI		

L-CURRENT: 106/481; 106/490, 502/158, 502/200, 524/588, 524/860

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☐ 6. Document ID: NZ 514891 A, WO 200058342 A1, AU 200035621 A, EP 1163260 A1, NO 200104534 A, KR 2001108400 A, CN 1357005 A, JP 2002543766 W

4: Entry 6 of 6 File: DWPI Oct 31, 2003

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E: Isolation and purification of proteins or cells in aqueous two-phase systems, comprises ining a desired protein or a cell to a targeting protein capable of isolating the protein ell into one of the phases

NTOR: FAGERSTROEM, R; KULA, M ; LINDER, M ; NAKARI-SETAELAE, T ; PENTTILAE, M ; SELBER, K ; NELD, F ; FAGERSTROM, R ; NAKARI-SETALA, T ; PENTTILA, M

RITY-DATA: 1999FI-0001782 (August 20, 1999), 1999FI-0000667 (March 25, 1999)

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NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
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